ACUPRESSURE VERSUS HAND-FOOT MASSAGE ON PAIN AMONG POST CESAREAN MOTHERS AT SRI RAMAKRISHNA HOSPITAL, COIMBATORE

REG. No. 301220054

A Dissertation Submitted to
The Tamilnadu Dr. M. G. R. Medical University,
Chennai-32.

In Partial Fulfillment of the Requirement for the
Award of the Degree of

MASTER OF SCIENCE IN NURSING

2014

ACUPRESURE VERSUS HAND-FOOT MASSAGE ON PAIN AMONG POST CESAREAN MOTHERS AT SRI RAMAKRISHNA HOSPITAL, COIMBATORE

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COLLEGE OF NURSING
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Submitted in Partial Fulfillment of the Requirement for the Award of the Degree of
MASTER OF SCIENCE IN NURSING
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2014

ACKNOWLEDGEMENT

I wish to express my genuine and whole hearted thanks to honorable **Shri. C. Soundara Raj Avl.,** Managing Trustee, SNR & Sons Charitable Trust for giving me an opportunity to utilize all the facilities in this esteemed institution.

I wish to express my thanks to **Prof. Seethalakshmi**, B. Sc (N)., R. N. R. M., M. N., M. Phil., (Ph.D)., Nursing Director, College of Nursing, Sri Ramakrishna Institute of Paramedical Sciences, Coimbatore for her reassurance, inspiration, enduring moral support, expert guidance and valuable suggestions throughout the study.

My whole hearted thanks to **Prof. Nirmala.T**, M. Sc (N)., Principal, College of Nursing, Sri Ramakrishna Institute of Paramedical Sciences, Coimbatore for her keen interest, ever guiding presence and valuable suggestions in completing this study.

I immensely thank and express my deep sense of gratitude to **Prof. Jamila Kingsley**, M. Sc (N)., for her expertise guidance, valuable suggestions, constant motivation, never ending support and keen interest in conception, planning and execution of the study.

I would like to express my profound gratitude to **Dr. R. Lalitha,** M. B. B. S., D. G. O., Consultant Obstetrician and Gynaecologist, Sri Ramakrishna Hospital, Coimbatore for her valuable suggestions and expert guidance throughout my study.

I greatly value the favors extended by **Dr. Arun kumar**, M.A., M.B.A., M.Phil, Ph.D., Professor in sociology, Department of Research Methodology and **Mrs. R. Ramya**, M. Sc., M. Phil., Associate Professor, Department of Biostatistics who intelligently guided and constantly encouraged with their valuable ideas thereby contributing a great deal of help to enrich the study.

I am greatly obliged to **Prof. Kanchana,** M.Sc (N)., **Prof. S. Girijakumari,** M. Sc (N)., **Prof. Suganthi,** M. Sc (N)., **Mrs. R. Renuka,** M. Sc (N)., **Mrs. Nuziba Begum,** M. Sc (N)., for their never ending moral support, ever guiding presence and valuable suggestions which helped in the successful completion of the study.

I express my deepest and heartfelt gratitude to **Mrs. Umadevi**, M. Sc (N)., **Mrs. Nithya. N**, M. Sc (N)., **Mrs. Chitra. L**, M. Sc (N)., **Mrs. Kavitha. V**, M. Sc (N)., and **Mrs. Yasodha**, M. Sc (N)., for their moral support and valuable suggestions and for being a driving force in completing the study.

My sincere thanks to **Dr. Saravanan**, Saravana Acu-touch & healing, Sivakasi, who had given me training on Acupressure Therapy and **Prof. Muthukumar M.P.T,** Sugam Physiotherapy Clinic, who had given me training on Massage Therapy.

I extend my sincere appreciation to all **the women who underwent cesarean section** for participating in my study and for their valuable co-operation**.**

I owe much to all **Faculties of various Departments, Staff members, Librarian and my friends Ms. Vincy.D, Ms. Beenamary.D** for their moral support and for lending their supporting hands throughout my research work.

I express my deepest gratitude to **Mr.S.A.Vadivelan,** for his valuable guidance of thesis alignment and support throughout my research work

My deepest and sincere appreciation and thanks to my most loved **Parents and Family Members** for their love, guidance, motivation, and prayerful support throughout my research work.

Finally, thanks cannot be the word for expressing my gratefulness to my well wisher **Mr. Karthikeyan Balasubramanian** for his omnipresent love and care that has enabled me to have perfect opportunities and grow each day.

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ABSTRACT

An interventional study was conducted to assess Acupressure versus Hand-foot massage on pain among post caesarean mothers at Sri Ramakrishna Hospital, Coimbatore. Quasi experimental Matched group experimental design was adopted and purposive sample of 28 mothers who underwent caesarean section and out of the effect of anaesthesia were included for the study. Informed consent was obtained from the selected mothers after brief explanation of the study and intervention. A pre-test was done using the Modified pain Assessment Tool given by American Pain Foundation. Acupressure was given to Experimental group I at SP6 point for 20 minutes, 10 minutes on each leg with 8 hours interval till the pain subsides. Hand-foot massage was given to post caesarean mothers in Experimental group II for 20 minutes with 90 minutes interval till the pain subsides. The findings of the study proved that application of acupressure and hand-foot massage were equally effective in reducing pain after caesarean section.

Acupressure versus Hand-Foot Massage on Pain among Post Caesarean Mothers at Sri Ramakrishna Hospital, Coimbatore

"Motherhood is a gift of God to women."

-Mother Theresa

The mother is the panacea for all kinds of calamities. The experience of transformation from womanhood into motherhood is a privilege reserved exclusively for women. Pregnancy and childbirth are wonderful and remarkable moments of life. Giving birth to a child can be one of the most joyful experiences of a woman's life, but it is undeniably one of the most painful too.

There are a number of ways where a woman can decide to deliver her baby, the age-old custom of giving birth to a baby in the natural way with the help of a mid-wife to the modern way of giving birth to the baby in the hospital surrounded by qualified doctors and nurses through Caesarean section. Caesarean section is a surgical procedure in which incision is made through a mother's abdomen and uterus to deliver one or more babies, alive or dead. One of the most important problem and complaint experienced by the mothers undergoing surgery is pain. Pain experience is a complex feeling which involves physical, emotional and cognitive component of an individual. Mothers routinely report mild to moderate pain even though they were administered pain medications. Post-operative pain can complicate and delay patient's recovery, lengthen hospital stay and cost.

A wide variety of pharmacological measures are used to relieve pain during the post-caesarean period but several studies indicate that the pharmacological agents create harmful effects on the women's health status. Therefore the health professional must explore alternative approaches to provide better care and promote healthy

atmosphere. A variety of non pharmacological measures are used for relaxation and pain relief which includes breathing techniques, touch and massage, music therapy, application of heat and cold, acupressure and acupuncture (Gurates, 2004).

Acupressure is a technique of applying pressure over specific points on the body known as acupoint to relieve pain, cure illness and promote wellness. Acupressure or acupoint massage (shiatsu) is an ancient healing art which uses the fingers to press key points on the surface of the skin and stimulates the body's natural self-curative abilities. It is one of the ancient and unique therapeutic methods of traditional Chinese medicine.

Massage therapy has a long history in different cultures around the world. Today people use different types of massage therapy for a variety of health promotion. Massage is a systematic, rhythmic form of touch using certain manipulation of the soft tissue of the body to restore metabolic balance. Hand-foot massage stimulates the mechanoreceptors that activate the non painful fibres, preventing pain transmission from reaching the consciousness (Wang 2004). Nurses have used complementary therapy for many years to relieve anxiety, promote comfort, and reduce or alleviate pain (Mohanhan et.,al 2008). Pain management challenges every health team members as there is no universal treatment for pain.

1.1. NEED FOR THE STUDY

In today's situation when the access to obstetric care is growing day by day, there has been a concern over the rising caesarean rates over the world. The WHO guidelines states that the proportion of caesarean births should range between 5 to 15%. In U.S. the rate was 22.7 per cent in 1990, which increased to 27.5

per cent in 2003. These levels and trends of caesarean section rates are even higher in case of Latin America; it ranged from 16.8 per cent to as high as 40 per cent in the countries of this region. It has been established that there are over 850,000 unnecessary caesarean section performed in the region each year. Higher rates were observed in private hospitals than in the public ones (Belizan et.al. 1999). The estimate for the caesarean section rates in East Asia also shows that it is well above the 15 per cent mark (Stanton, 2006). India is also not excluded from this trend. Though the estimates of caesarean section rates in India is 7.1 per cent in the year 1998 and there is 16.7 per cent change in the rates annually in India (Stanton, 2006), which is one of the highest among the countries. A five-year audit from a large teaching hospital in Kolkata showed a caesarean section rate of 49.9 per cent (Pahari, et.al. 1997) and another study in Chennai showed an alarming caesarean section rate of 50 percent (Sreevidya, 2003).

World Health Statistics in 2012 reported that 9% of all the births in India were by caesarean section. It was also reported that the caesarean rate in China was three times higher than that of India at 27%, and Sri Lanka accounted for 24%. Bangladesh too recorded caesarean rates higher than India at 13%, Bhutan recorded 12%and the Maldives 32%. Caesarean section rates are rising globally.

Pain after surgery is common, often severe and endup with greater discomfort. Post operative pain probably prolongs hospital stay, as it can affect all organ systems. There is now evidence that post-operative pain relief has significant physiological & psychological benefits such as improving mobility, comfort & reduces anxiety and fatigue (Charlton 1997). Not only it results in earlier discharge from hospital, but also it reduces the onset of chronic pain syndromes. Post-operative pain remains grossly

under treated, with up to 70% of patients reporting severe to moderate pain following surgery (Pyati 2007).

The literature about the effect of foot and hand massage on post caesarean pain control by Degirmen et al(2010), states that 20 minutes foot and hand massage reduce post operative pain intensity significantly. Wong HL (2004) conducted a study where 75 caesarean mothers were treated with foot and hand massage on post-operative pain, the result showed that the post-operative pain intensity level decreased significantly.

Chen HM, Chang FY, Hsu CT (2005) conducted a study to examine the effectiveness of acupressure for controlling post-caesarean section symptoms, such as nausea, vomiting, anxiety and pain perception. Wu HC et al (2009) conducted a study in Taiwan to find out the effect of acupuncture or electro-acupuncture on post-caesarean pain. Lin JG et.al.,(2010), conducted a study to examine the effect of acupressure in lower abdominal surgery in China medical college, Taiwan. The result of these studies suggested that post caesarean pain reduced significantly by acupressure.

The researcher during her clinical posting witnessed caesarean mothers with post operative pain, irrespective of analgesics administration, these mothers have difficulty in initiating newborn care. Considering these facts, the researcher searched for various non pharmacological interventions on reducing pain among post caesarean mothers.

With the support of the above literatures and by understanding the benefits of acupressure and hand-foot massage, the researcher was interested to compare the effect of acupressure & hand-foot massage on reducing post caesarean pain.

1.2. STATEMENT OF THE PROBLEM

ACUPRESSURE VERSUS HAND - FOOT MASSAGE ON PAIN AMONG POST CAESAREAN MOTHERS AT SRI RAMAKRISHNA HOSPITAL, COIMBATORE.

1.3. OBJECTIVES

1.3.1 Assess the level of pain among post caesarean mothers.

1.3.2 Application of Acupressure to Experimental Group I and Hand- foot massage to Experimental Group II.

1.3.3 Assess and Compare the of level of pain among post caesarean mothers in Experimental Group I & Experimental Group II after application of Acupressure and Hand-foot massage.

1.4. OPERATIONAL DEFINITION

1.4.1. Pain

The pain experienced by the mothers after the suppression of anaesthetic effect of caesarean section.

1.4.2. Hand - foot massage

Hand - foot massage refers to manipulation of hand and feet of the post-caesarean mother by stroking, effleurage, kneading, friction and by

both palms of the investigator for 5 minutes in each limbs for 20 minutes in an interval of 90 minutes until the pain subsides.

1.4.3. Acupressure

Acupressure refers to an application of massage over SP6 acupoint for a duration of 20 minutes, 8th hourly until the pain subsides.

1.4.4. Post caesarean mothers

The mothers who underwent caesarean section and who recovered from anaesthetic effect and in the post operative ward.

1.5. CONCEPTUAL FRAMEWORK

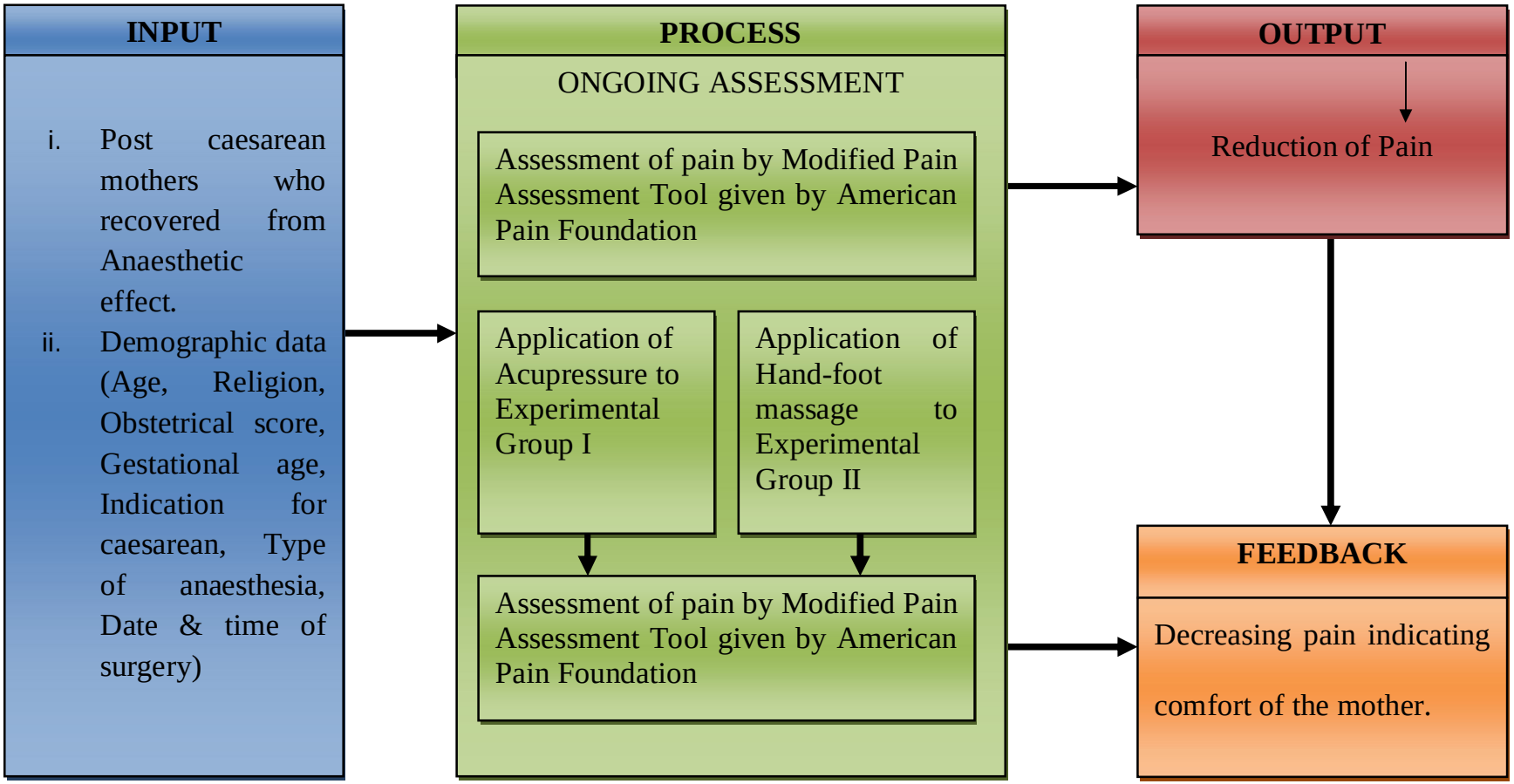
Conceptual framework selected for this study is based on Ludwig & Bartalanffy General System Theory. In this theory input implies information that enters the system, and output implies the end product of the system.

1.5.1 Input includes post caesarean mothers who recovered from anaesthetic effect and demographic data.

1.5.2 Process consists of pre assessment of pain by modified pain assessment tool given by American pain foundation, followed by application of acupressure to Experimental group I & Hand-foot massage to Experimental group II. After intervention assess the level of pain using the same tool.

1.5.3 Output consists of finding out the effect of Acupressure and Hand-Foot massage by identifying reduction in pain among Post-Caesarean mothers.

1.1 CONCEPTUAL FRAMEWORK ON GENERAL SYSTEM THEORY LUDWIG & BARTALANFFY (1980)



Kozhier & Erb's (2009)

1.6. PROJECTED OUTCOME

Acupressure and Hand-foot massage will have a positive effect on post-operative pain after caesarean section.

REVIEW OF LITERATURE

Literatures related to present study is organised under the following headings

2.1. Literatures related to non pharmacological management of post caesarean pain

2.1.1. Literatures related to acupressure

2.1.2. Literatures related to acupressure on post caesarean pain

2.1.3. Literatures related to hand-foot massage

2.1.4. Literatures related to hand-foot massage on post caesarean pain

2.1.5. Literatures related to other non pharmacological management

2.2. Literatures related to pharmacological management of post caesarean pain

2.1. LITERATURES RELATED TO NON PHARMACOLOGICAL MANAGEMENT OF POST CAESAREAN PAIN

2.1.1. Literatures related to acupressure

Chad Dupis (2011), conducted a study in China to evaluate the effectiveness of an acupuncture extra point for postoperative pain. Researcher selected 120 patients who underwent abdominal surgery and randomly assigned to acupuncture group and western medication group. Acupuncture group received electro acupuncture at the extra point neimadian. Patients pain level were analyzed using visual analogue scale at 2 hours post operatively for pain and analgesic effect were measured by examining beta endorphin levels. Researchers found that the visual analogue scale scores were lower and the analgesic effect was higher in acupuncture group than in medication

group. This study shows both benefits and safety advantages of acupuncture treatment for postoperative pain.

Maryam Kashanian, Shadab Shahali (2010), conducted a single blind randomized clinical trial in Iran, with the aim to evaluate the effect of acupressure at the SP6 point on the duration and pain of the active phase of labor. Samples comprised of 120 nulliparous women who were at the beginning of active phase of labor. The women were randomly assigned to two groups: experimental and control group. Experimental group received acupressure at SP6 point for 30 minutes during contractions. Control group simply received a touch at this point without massage. Two hours later a second pelvic examination was performed and in the absence of good forceful contractions oxytocin in the classical form was infused. Finally, duration of active phase, severity of pain (using the Visual Analogue Scale), the amount of necessary oxytocin and necessity to administer oxytocin and the route of delivery were compared between the two groups. The mean duration of active phase was shorter in the case group (252.37+108.50 min) than in experimental group (441.38+155.88). The severity of pain in the experimental group was less than the control group (5.87+1.77 vs. 6.79+1.52). Twenty-five women (41.7%) in the experimental group and 38 women (63.3%) in the control group needed oxytocin. The amount of necessary oxytocin in the experimental group was less than the control group (73.33+97.19 ml and 126.6+97.19 ml respectively, p¼0.003). Authors concluded that acupressure at the SP6 point could reduce the duration and severity of pain in active phase of labor.

Yeong Hee Shin et.al., (2004) done a study to evaluate the effect of acupressure on nausea and vomiting during chemotherapy cycle for postoperative

stomach cancer patients in Korea. Forty postoperative gastric cancer patients receiving the first cycle of chemotherapy were divided into control and intervention group. Both groups received regular antiemesis medication. Intervention group received acupressure training and was instructed to perform the finger acupressure for 5 minutes on P6 (Nei-Guan) point located at 3-finger widths up from the first palmar crease, between palmaris longus and flexor carpi radialis tendons point, at least 3 times a day before chemotherapy and mealtimes or based on their needs. Both groups received equally frequent nursing visits and consultations, and reported nausea and vomiting using Rhode's Index of Nausea, Vomiting and Retching. Researchers found significant differences between intervention and control groups in the severity of nausea and vomiting, the duration of nausea, and frequency of vomiting. Average score of severity was 4.35 for the intervention group whereas the control group scored 7.95, showing statistically significant differences (*t:* –3.54, P: 0.01). Authors concluded that acupressure was shown to reduce the frequency, duration, and severity of chemotherapy-induced nausea and vomiting.

2.1.2. Literatures related to acupressure on post caesarean pain

A randomised controlled study was done by Lin Jg et.al., (2010) in Taiwan, with the aim to assess the effect of acupressure on pain after lower abdominal surgery. Hundred samples were selected and randomly assigned to experimental and control group. Experimental group received acupressure on SP6 acupoints for a period of 20 minutes. Post operative pain was evaluated by Visual analogue scale and recording the time of first required analgesic, the number of patient controlled analgesia demands and the total amount of morphine required. The result shows that the control group requested analgesics at 10^{th} minute, where as experimental group requested

analgesic at 28th minute. During the first 24hours, the total amount of morphine required was decreased by 21% in control group and 61% in experimental group. Study found that treatment with acupressure can reduce postoperative analgesic requirements and associated side effects in patients undergoing lower abdominal surgery.

Wu HC et.al., (2009) conducted a double blind randomized controlled trial in China to find out the effect of acupuncture on post caesarean section pain. Sixty women, who underwent caesarean section under spinal anaesthesia were randomly assigned to 2 groups control group, acupuncture group. After surgery, control group received patient controlled analgesia whereas, acupuncture group received manual acupuncture or electro acupuncture on San Yin Jiao (Sp6) point along with patient controlled analgesia. The first time of requesting morphine, the frequency of patient controlled analgesia demands in 24 hours, and the doses of patient controlled analgesia used were recorded. The total dose of patient controlled analgesia used within the first 24 hours was 30% - 35% less in the acupuncture group when compared with the control group. Authors concluded that the application of acupuncture or electro-acupuncture could definitely delay the time of requesting pain relief medication after caesarean section and decrease the patient controlled analgesia doses used within the first 24 hours.

A study was conducted by Chen HM, chang FY, Hsu CT (2005) with the aim to examine the effectiveness of acupressure for controlling post-caesarean section symptoms, such as nausea and vomiting, anxiety and pain perception. Samples comprised of 104 post-caesarean mothers. Samples were selected by convenience sampling and randomly assigned to experimental and control group. Experimental

group received 3 acupressure treatments. The first treatment was performed the night before caesarean section, the second was performed 2-4 hours after caesarean section, and the third was performed 8-10 hours after caesarean section. The measures included the Rhodes Index of Nausea and Vomiting, Visual Analogue Scale for Anxiety, State-Trait Anxiety Inventory, Visual Analogue Scale for Pain and physiologic indices. The use of acupressure reduced the incidence of nausea, vomiting or retching from 69.3% to 53.9%, compared with control group (95% confidence interval = 1.65-0.11; p = 0.040) 2-4 hours after surgery and from 36.2% to 15.4% compared with control group (95% confidence interval = 0.59-0.02; p = 0.024) 8-10 hours after surgery. Study concluded that the experimental group had significantly lower anxiety and pain perception than the control group.

2.1.3. Literatures related to hand-foot massage

A randomized controlled study was done by Marziyeh Asadizaker, Alizaman Fathizadeh et.al., (2011) in Iran to determine the effect of hand-foot massage on postoperative pain and sedative drug use in cardiac surgery patients. Sixty five patients were selected and randomly assigned to experimental and control group. The massage group received 20 minute hand-foot massage (each extremity 5 minutes) and control group rested in bed and researcher was near them for 20 minutes to eliminate bias. Pain intensity was measured by visual analogue scale and other variables were measured by check list before and after intervention in both groups. There was statistically significant difference on the pain intensity and type, and amount of sedative drug used between the two groups after intervention. Authors concluded that 20 minute hand-foot massage could be adjunct to analgesic and increase calmness level of patients underwent cardiac surgery.

A study was done by Ross adams, Barb whiet, Cynthiya Beckett (2010) in Arizona, USA, to evaluate the use of massage therapy on pain levels in acute care setting. Convenience samples of 53 inpatients were selected and were given massage for 30 minutes. Pain levels before and after massage therapy were recorded using visual analogue scale. **Before massage, the mean pain level recorded by the patients was 5.18 (standard deviation 2.01). After massage, the mean pain level was 2.33 (standard deviation 2.10). The observed reduction in pain was statistically significant (paired samples $t_{52} = 12.43$, $r = .67$, $d = 1.38$, $p < .001$). Result shows that integration of massage therapy into acute care setting creates overall positive results in patient's ability to deal with physical and psychological aspects of their health condition. The study demonstrated not only significant reduction in pain levels, but also the interrelatedness of pain, relaxation, sleep, emotions, recovery, and finally, the healing process.**

Vijaya Puthusseril (2006) conducted a study in Regional Cancer Centre, Kerala to find the effectiveness of special foot massage as a complementary therapy in palliative care. Study comprised of 87 patients with breast cancer and was given 10 minutes foot massage (5 minute on each foot). Pain level was assessed using visual analogue scale. It is found to have a significant immediate effect on pain perception. Researcher recommended the use of foot massage as a complementary therapy and as a relatively simple nursing intervention for patients experiencing pain related to pain experience.

2.1.4. Literatures related to hand-foot massage and post caesarean pain

A double blind randomized study was conducted by Latifi Shahrbanoo et.al., (2012) in order to determine the impact of hand-foot massage on postoperative caesarean pain. This clinical trial was carried out on 90 women who underwent elective caesarean section in Yahyanejad hospital, Babol. Subjects selected by random allocated method were divided into three groups: a control group, a foot and hand massage group, and foot massage group, each of which included 30 patients. On the day of surgery, the pain intensity and vital findings of the patients were measured 1 to 4 hours after a dose of pain medication, and then massage techniques were applied. Post test was conducted in three intervals, immediately after the massage, 60 minutes and 90 minutes after the massage by numerical rating scale. Finding shows that pain intensity was reduced significantly in both foot massage group and foot and hand massage group. Study suggested that hand-foot massage can be used as an effective nursing initiative in post operative pain management.

Abbaspoor et.al., (2011) conducted a randomized control trial in Iran, to assess the effect of hand-foot massage on post-caesarean section pain. Samples comprised of 80 women who underwent an elective caesarean section. The visual analogue scale was used to determine the pain intensity before, immediately, and 90 minutes after conducting 5 minutes of foot and hand massage. The pain intensity was found to be reduced after intervention compared with the intensity before the intervention ($p < .001$). There was a significant difference between groups in terms of pain intensity and requesting for analgesic ($p < .001$). According to these findings, the foot and hand massage can be considered as an effective complementary method to

reduce the pain of caesarean section and to decrease the amount of medications and their side effects.

A randomized experimental study was carried out by Degirmen et.al., (2010) with the aim to determine the effect of foot and hand massage on reducing post-operative pain in mothers who had caesarean section. The samples comprised of 75 post- caesarean mothers and they were randomly allocated into three groups: control group, foot and hand massage group and foot massage group, each of which included 25 caesarean mothers. Foot and hand massage was done for 20 minutes, 5minutes in each extremity. Pain intensity was measured and recorded after the massage in all the three groups using Numerical Rating Scale and Visual Analogue scale. The measurements were repeated and noted at 60 minutes and 90 minutes to determine the efficiency of foot and hand massage. Pain intensity scores in the foot and hand massage group was 5.76 ± 1.23 before the massage, whereas, it was 3.00 ± 1.08, right after the massage and 3.64 ± 1.22, 60 minutes after the massage. Similarly, the pain intensity scores of the women in the foot massage group were 5.44 ± 1.41, and on account of pain relief from the massage, the score was found to be 3.44 ± 1.32 right after the massage and 3.76 ± 1.20, 60 minutes after the massage. Result shows that foot and hand massage is an effective nursing initiative in management of post operative pain among caesarean mothers.

2.1.5. Literatures related to other non pharmacological intervention for post caesarean pain

Hüseyin Şen et.al., (2009), conducted a study to examine the effect of musical therapy on post operative pain after caesarean section among 100 caesarean mothers

between ages 20-40 years. Samples were randomly assigned into two groups and experimental group listened to music through a headphone for one hour immediately before surgery whereas control group did not listen to any music during the same period. The anaesthetic technique was standardized in order to control extraneous variables. The pain intensity level was assessed by visual analogue scale. Pain scores were significantly lower ($p<0.05$) in experimental group than control group. Study suggested that music therapy before surgery decreases post operative pain and analgesic requirement.

A single blind randomized study was conducted by Hadi N, Hanid AA(2011) in Iran, to evaluate the effectiveness of lavender essence on post caesarean pain. Study comprised of 200 women who underwent elective caesarean section were selected and randomly assigned to experimental and control group. The experimental group received lavender essence through oxygen mask for 3 minutes after 3 hours of intravenous analgesics administration. The visual analogue scale was used to document the pain level half an hour after first intervention. The aromatherapy was repeated 8hour and 16hours later, and half an hour after each intervention, corresponding visual analogue scale was documented. The baseline visual analogue scale was comparable between two groups. The mean visual analogue scale decreased significantly by 16 hours after the first intervention in both groups ($p < 0.001$).The results concluded that aromatherapy by using lavender essence is successful and safe complementary therapy in reducing pain after caesarean section.

Binder P et.al., (2010), conducted a randomised controlled study in Sweden, to examine the effectiveness and overall opiate consumption between high-sensory transcutaneous electrical nerve stimulation (Hi-TENS) combined with patient-

controlled analgesia with morphine and patient-controlled analgesia with morphine alone following elective caesarean birth. Participants were randomly assigned and connected to patient-controlled analgesia with morphine alone or in combination with high-sensory transcutaneous electrical nerve stimulation apparatus. Levels of morphine consumed were calculated every third hour during the first 24 hours post partum. Pain and sedation were assessed by visual analogue scale at one, three, six, nine, twelve and twenty four hours post operatively. Total consumption of morphine differed significantly between the groups: morphine with transcutaneous electrical nerve stimulation group consumed 16.2 ± 12.6 mg of morphine and morphine alone group consumed 33.1 ± 20.9 mg ($p = 0.007$). Assessment of pain relief showed no significant difference. Sedation differed significantly between the groups ($p = 0.045$), especially between three and 12 hours post partum ($p = 0.011$). Authors concluded that pain relief from a combination of high-sensory transcutaneous electrical nerve stimulation and patient-controlled analgesia with morphine was as effective as patient-controlled analgesia with morphine alone, produced less sedation and reduced morphine use by approximately 50%.

A randomized controlled trial was carried out by Taylor AG et.al., (2003) in United States, in order to examine the effect of adjunctive postoperative massage and vibration therapy on short-term post surgical pain. Hundred and five women who underwent laparotomy were selected and randomly assigned to two experimental groups. The group one received standardized 45-minute sessions of gentle Swedish massage and the second group received 20-minute sessions of inaudible vibration therapy (physiotones) for the 3 consecutive evenings after surgery, as well as additional sessions as desired. All patients received routine care with analgesics.

Massage was more effective than routine care for post operative pain (p = 0.0244) than vibration therapy. The result suggests that gentle Swedish massage is more effective than vibration therapy on short-term sensory pain, affective pain and distress among women undergoing laparotomy.

2.2 LITERATURES RELATED TO PHARMACOLOGICAL MANAGEMENT OF POST-CAESAREAN PAIN

Adeniji AO, Atanda OO (2013), carried out a study in Nigeria to compare the efficacy of pentazocine and tramadol used in unimodal and multimodal approach in the management of post caesarean pain. This study employed a random allocation design to compare the effectiveness of intramuscular pentazocine (60 mg) or tramadol (100 mg) as single analgesic agent and in combination with daily intramuscular piroxicam 20 mg, for the management of post-caesarean section pain during the immediate 12 hours after surgery. The primary outcome measure was control of postoperative pain, while the secondary outcome measures were the analgesic agent-onset of action, duration of action, patient satisfaction, and maternal and neonatal adverse outcomes. The study concluded that the multimodal approach of combining pentazocine with piroxicam is a safe, effective, and an acceptable mode of analgesia for post-caesarean section pain management, especially in a resource-constrained setting.

A double blind clinical trial was conducted by Shahraki AD et.al., (2012) in Iran, with the aim to compare the analgesic efficacy of oral methadone and intra muscular pethidine for post caesarean pain treatment. Women who underwent caesarean section were selected and randomized into two groups. All mothers

routinely received a single intra muscular pethidine dose (50 mg) after caesarean section in the recovery room. One group received 0.7 mg/kg pethidine every 6 hour intra muscularly, and another group received 0.07 mg/kg oral methadone every 6 hour. Severity of pain assessed using visual analogue scale score in 6, 12, 18 and 24 hour after surgery. Pain severity in methadone group at 6, 12, 18 and 24 hour post operation were 6.4 ± 0.9, 3.4 ± 0.8, 1.9 ± 1.1, 0.5 ± 0.5 ($p < 0.05$) and in pethidine group were 6.6 ± 0.8, 3.4 ± 0.9, 2.1 ± 1.0 and 0.5 ± 0.5 ($p < 0.05$), respectively .The authors found that satisfaction of patients and nursing system with methadone was high and thereby it can be recommended to use methadone for post operative pain relief.

Wong JO et.al., (2010), done a study in Taiwan in order to compare the efficacy of parecoxib and ketorolac combined with morphine on patient controlled analgesia for post caesarean delivery pain management. In this randomized study 66 mothers who underwent caesarean section were selected and randomly assigned to two groups. Group I received an initial intravenous bolus of 40mg parecoxib as a loading dose post-operatively and then two bolus doses of 20mg parecoxib were subsequently given at intervals of 24hours. Morphine was basically used in patient controlled analgesia manner during the 3-day study course; and Group II received an intravenous loading bolus of 30mg ketorol post-operatively and then 90mg ketorolac combined with morphine in patient controlled analgesia fashion throughout the study course. Efficacy was evaluated by Verbal ranking scale for pain intensity, Ramsay sedation score, profile of mood state, quality of sleep, and patient satisfaction with analgesia. Efficacy evaluations and adverse effects were recorded every 24hours and at 72hours after initial loading boluses. There were no significant differences of

sedation scale, mood state, quality of sleep and satisfaction between two groups, except patients of Group I had a lower pain scores than those of the Group II at 24hours (3.1, range 0-5 vs. 4.3, range 0-8, p = 0.005) and 72hours (1.1, range 0-3 vs. 1.9, range 0-4, p = 0.005). The result recommended that parecoxib with patient controlled analgesia morphine can be used for post-caesarean delivery analgesia with the same efficacy as ketorolac for an opioid-sparing effect.

METHODOLOGY

This chapter describes the research methodology adopted for acupressure versus hand-foot massage on pain among post-caesarean mothers was conducted at Sri Ramakrishna Hospital, Coimbatore. The following passage discusses in detail the research design, setting, population, criteria for sample selection, sampling techniques of data analysis and interpretation.

3.1. RESEARCH APPROACH AND DESIGN

The research approach adopted for this study was quantitative approach. The research design adopted was Matched Group Experimental design.

3.2. SETTING

The study was conducted in the post-operative obstetric ward at Sri Ramakrishna Hospital, Coimbatore. The hospital's bed strength is 740. OBG unit consist of 40 beds which has 13 post-operative caesarean beds. Approximately 30-40 caesarean deliveries are conducted per month in the present setting.

3.3. POPULATION

The population included were mothers who underwent elective or emergency caesarean section at Sri Ramakrishna Hospital.

STATISTICS OF CAESAREAN DELIVERY (JUNE 2012 - MAY 2013) AT SRI RAMKRISHNA HOSPITAL, COIMBATORE

Statistics of caesarean section was calculated in the present setting in order to identify the incidence of caesarean section.

Table 3.1

Statistics of Caesarean Delivery (June 2012 - May 2013) at Sri Ramakrishna Hospital, Coimbatore

Month	No .of caesarean delivery	Percentage (%)
June	53	64
July	60	63
August	56	62
September	49	62
October	51	66
November	70	73
December	61	75
January	58	66
February	42	58
March	46	61
April	56	66
May	56	60

The above table confirms that the average number of caesarean section is 45 per month at Sri Ramakrishna Hospital thus concluding that the incidence of caesarean section is increasing in the present setting.

3.4. CRITERIA FOR SAMPLE SELECTION

Inclusion criteria

1. Mothers who are out of the effect of anaesthesia

Exclusion criteria

1. Mothers who have damaged tissue and skin on their hands and feet
2. Mothers who receive continuous analgesic infusion.

3.5. SAMPLING

Purposive sample of 28 post caesarean mothers who were out of the effect of anaesthesia were included for the study. The samples were randomly assigned to Experimental group I (N=14) and Experimental Group II (N=14).

3.6. VARIABLES UNDER THE STUDY

Independent variable

The independent variable of the study was application of acupressure and hand-foot massage for post caesarean mothers after the effect of anaesthesia.

Dependent variable

Dependent variable of the present study was post-operative pain after caesarean section.

3.7. MATERIALS

PART A

3.7.1. Demographic data: The obstetrical data profile comprised of information regarding age, religion, obstetrical score, gestational age, indication for caesarean section, type of anaesthesia, date and time of surgery.

PART B

3.7.2. Modified Pain Assessment tool given by American pain foundation: This scale consists of two components: I. Daily pain chart, II. Daily pain summary. Daily pain chart is assessed by numerical pain scale which is anchored by numbers 0 to 10. Here the mothers are instructed to mark a point on the line indicating the level of pain. Daily pain summary involves 4 domains such as pain during activity, presence of sound sleep, presence of pain tolerance, satisfaction of pain management. Daily pain summary is assessed on the day of surgery and on the day in which the mother tells subsidence of pain.

ADMINISTRATION OF TOOL

The samples of the study were post caesarean mothers at Sri Ramakrishna Hospital. Acupressure and hand-foot massage were applied to reduce the post-operative pain after caesarean section. To assess the level of pain the researcher used

Modified Pain Assessment tool given by American pain foundation. The mothers were asked to rate the pain level ranging from 0 (no pain) to 10 (severe pain) before and after each intervention. The pre test score and post test score was interpreted as no pain, mild pain, moderate pain and severe pain.

PART C

INTERVENTIONAL PROCEDURE

Acupressure

The total duration of the procedure was 20 minutes and the intervention was provided thrice daily after the mother is out of anaesthetic effect until the pain subsides.

Step 1. Explain the procedure and obtain informed consent from the woman

Step 2. Ask the woman to relax and be in a comfortable position.

Step 3. Administer Modified Pain Assessment tool given by American pain foundation and ask the woman to rate her pain on the scale.

Step 4. Select the SP6 acupressure points on the right and the left leg.

Step 5. Provide the acupressure in both clockwise and anti clockwise directions for about 20 Minutes, 10 minutes on each point.

Step 6. Administer the tool after 1 hour and ask the woman to rate her pain on Modified Pain Assessment tool given by American pain foundation.

Step 7. Repeat the procedure 8th hourly a day until the pain subsides.

APPLICATION OF SP6 ACUPRESSURE

STEP 1: IDENTIFICATION OF SP6 ACUPOINT

STEP 2: APPLICATION OF SP6 ACUPRESSURE

Hand-foot Massage

Step 1. Wash hands

Step 2. Assess the pain level of the mother using Modified Pain Assessment tool given by American pain foundation

Step 3. Apply massage to each hand of caesarean section mother for 5 minutes using the following techniques

Step 4. Stroking and effleurage is done for 1 minute on both dorsal and palmar surface of the hand of caesarean section mother

Step 5. It is then followed by whole finger kneading on the dorsal surface for 1 minute and thumb pad kneading on the palmar surface for the next 1 minute

Step 6. Then petrissage which include wringing and skin rolling is done on the dorsal surface of the hand of caesarean section mother for 1 minute.

Step 7. Apply circular friction on wrist joint, metacarpophalangeal joints and interphalangeal joints of caesarean section mother for 1 minute

Step 8. Following hand massage, the mother's foot is elevated by supporting it with a pillow.

Step 9. Apply massage to each foot of caesarean section mother for 5 minutes using the same massage techniques.

Step 10. Stroking and effleurage is done for 1 minute each on both dorsal and plantar surface of foot of caesarean section mother.

Step 11. It is then continued with whole finger kneading on the dorsal surface for 1 minute and knuckle kneading on the plantar surface for the next 1 minute.

Step 12. Apply circular friction on ankle joint, metatarsophalangeal joints and interphalangeal joints of caesarean section mother for 1 minute.

Step 13. In between kneading, petrissage and friction, effleurage is done to maintain the continuity of the massage.

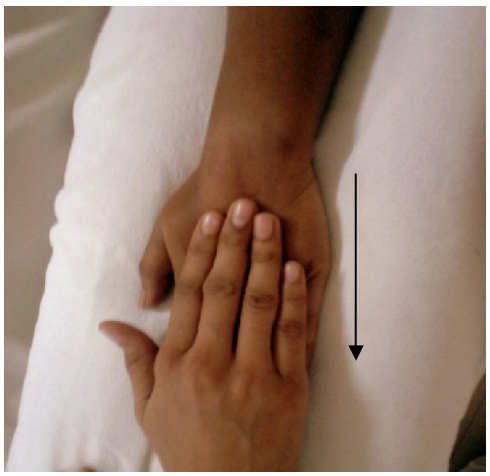
Step 14. The foot and hand massage is done for the total duration of 20 minutes.

Step 15. Assess the pain level of the mother using Modified Pain Assessment tool given by American pain foundation at 5 minutes after intervention

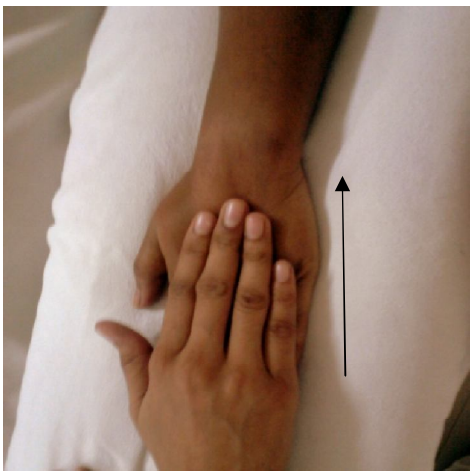
Step 16. Perform the procedure after every 90 minutes till the pain subsides.

MASSAGE TECHNIQUES

STEP 1: STROKING



STEP 2: EFFLUERAGE



STEP 3: KNEADING

STEP 4: THUMB PAD KNEADING

STEP 4: PETRISSAGE

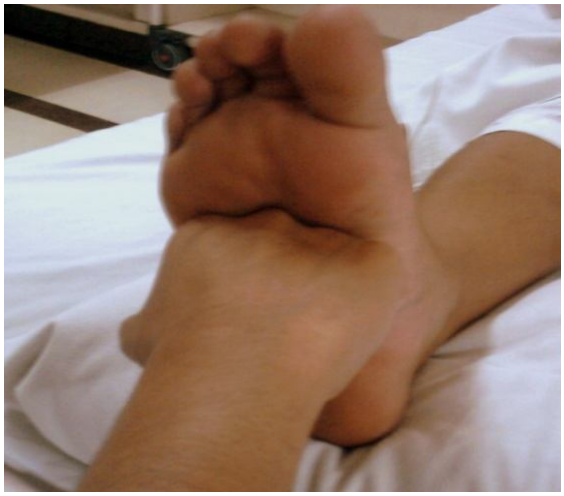
STEP 5: FRICTION

STEP 6: STROKING

STEP 7: EFFLEURAGE

STEP 8: KNEADING

STEP 9: KNUCKLE KNEADING



STEP: 10 FRICTION

3.8. HYPOTHESIS

H_1 – There is a significant difference in pain among post caesarean mothers in experimental group I before and after application of acupressure.

H_2 – There is a significant difference in pain among post caesarean mothers in experimental group II before and after application of hand-foot massage.

H_0 – There is no significant difference in pain among post caesarean mothers in experimental group I and Experimental group II after the application of acupressure and hand-foot massage respectively.

3.9. PILOT STUDY

Pilot study was conducted in the post- operative obstetric ward of Sri Ramakrishna Hospital, Coimbatore for a period of 10 days. Purposive samples of 10 caesarean mothers were selected for the study and randomly assigned into both experimental groups. Assessment of post-operative pain was done before and after

intervention using Modified pain assessment tool given by American pain foundation. Acupressure was applied on SP6 point for a period of 20 minutes and hand-foot massage was given for 20 minutes with 90 minutes interval. Results of the pilot study revealed that hand-foot massage was effective than acupressure on post caesarean pain.

3.10. MAIN STUDY

The main study was conducted to meet the objectives of the present study. The data was collected for a period of 30 days from 20th June 2013 to 21st July 2013 at Sri Ramakrishna Hospital, Coimbatore. Purposive sampling of 28 caesarean mothers who were out of the effect of anaesthesia were selected as samples for the study. Assessment of post-operative pain was done before and after acupressure and hand-foot massage using Modified pain assessment tool given by American pain Foundation. Experimental group I received Acupressure on SP6 point for 20 minutes ten minutes on each leg with an interval of 8 hours until the pain subsides. The foot and hand massage was given for 20 minutes with 90 minutes interval till the pain subsides. Both the groups received intervention along with routine nursing care.

3.11. TECHNIQUES OF DATA ANALYSIS AND INTERPRETATION

Frequency table were formulated for all significant demographic data. Both descriptive and inferential statistical methods were adopted for data analysis. The collected data was analyzed by using ‘t’ test to find out the effectiveness of Acupressure and Hand-foot massage on post-operative pain among post caesarean mothers.

DATA ANALYSIS AND INTERPRETATION

The participants of the study were caesarean mothers with post-operative pain who were out of the effect of anaesthesia. The caesarean pain was assessed using modified pain assessment tool given by American pain foundation. The interventions selected for two independent experimental groups were acupressure and hand-foot massage for the reduction of caesarean pain.

The collected data were analyzed using descriptive and inferential statistics and presented in the form of tables and figures.

SECTION I

4.1. DISTRIBUTION OF DEMOGRAPHIC AND OBSTETRICAL VARIABLES

The socio demographic characteristics and obstetrical data were collected to analyse their influence on reduction of post-operative pain after caesarean section.

Table 4.1

Distribution of Demographic Variables

Demographic Variables	Experimental Group I		Experimental Group II	
	No. of mothers	Percentage (%)	No. of mothers	Percentage (%)
Age in years				
20-24	5	36	2	15
25-28	6	43	6	43
29-32	3	21	3	21
33-36	-	-	3	21
Religion				
Hindu	14	100	12	80
Christian	-	-	-	-
Muslim	-	-	2	20

The age distribution of mothers reveals that majority of mothers in the experimental group I and experimental group II (43%) were between 25-28 years of

age. 21% mothers in the experimental group I and II were found to be 29-32 years of age.

The distribution of mothers based on religion among the experimental group I show that all the mothers were Hindus. The experimental group II comprised of 80% of Hindu mothers and 20% of Muslim mothers.

Table 4.2

Distribution of Obstetrical variables

Obstetrical Variables	Experimental Group I		Experimental Group II	
	No. of mothers	Percentage (%)	No. of mothers	Percentage (%)
Present obstetrical score				
Primigravida	7	50	5	36
Multigravida	7	50	9	64
Gestational age (in weeks)				
Less than 37	4	29	8	57
37	2	14	4	29
38	5	36	1	7
More than 38	3	21	1	7
Indication for LSCS				
Previous caesarean Birth	4	29	6	43
Pregnancy complications	4	29	6	43
Labour complications	6	42	2	14
Type of Anaesthesia				
Spinal	14	100	14	100
General	-	-	-	-

The distribution of mothers based on present obstetrical score reveals that in experimental group I, 50% of mothers were primigravida and 50% of them were multigravida. In experimental group II, 36% were primigravida and 64% of them were multigravida.

The gestational age of mothers reveals that in both the experimental group I (29%) and experimental group II (57%) majority of the mothers underwent caesarean section at less than 37 weeks of gestation. 14% of the mothers in the experimental group I and 29% of the mothers in the experimental group II had caesarean section at 37 weeks of gestation.

The distribution of women based on the indication for surgery shows that in the experimental group I 29% of women underwent caesarean section due to previous caesarean section and pregnancy complications and 42% of women underwent caesarean due to labor complications. In the experimental group II 43% of the women underwent caesarean due to previous caesarean section and pregnancy complications and 14% of women underwent caesarean due to labor complications.

All the mothers (100%) in the experimental group I and experimental group II received spinal anaesthesia as per the hospital policy.

SECTION II

4.2. ASSESSMENT OF PAIN AMONG POST CAESAREAN MOTHERS BEFORE AND AFTER INTERVENTION IN EXPERIMENTAL GROUP I AND EXPERIMENTAL GROUP II

Post-operative pain was assessed for caesarean mothers using Numerical Rating Scale before and after acupressure (in Experimental group I) and hand-foot massage (in Experimental group II). This scale consists of a horizontal line that is anchored by numbers 0 to 10. The mothers were asked to rate the pain level ranging from 0 (no pain) to 10 (severe pain) before and after intervention.

Table 4.3

Assessment of Pain among Post Caesarean Mothers before and after Intervention in both experimental groups

(N=28)

Level of Post-Operative Pain	Experimental Group I				Experimental Group II			
	Before Intervention		After Intervention		Before Intervention		After Intervention	
	No. of mothers	%	No. of mothers	%	No. of mothers	%	No. of mothers	%
No Pain (0)	-	-	6	43	-	-	10	71
Mild (1-3)	-	-	8	57	-	-	4	29
Moderate (4-7)	10	71	-	-	4	29	-	-
Severe (8-10)	4	29	-	-	10	71	-	-

The above table confirms that all mothers in experimental group I and experimental group II had moderate and severe level of pain before intervention. After the application of acupressure among mothers in experimental group I, 57% of them reported mild pain, and 43% of them reported no pain. Whereas in experimental group II after application of hand-foot massage 29% of them reported mild pain and 71% of them reported no pain. This shows that acupressure and hand-foot massage has an effect on post caesarean pain.

SECTION III

4.3. ANALYSIS ON LEVEL OF PAIN AMONG POST CAESAREAN MOTHERS OF EXPERIMENTAL GROUP I BEFORE AND AFTER ACUPRESSURE

Pain scores of post caesarean mothers in experimental group I before and after intervention was analyzed to identify the significant effect of acupressure on post-operative pain. Analysis was done using paired 't' test.

Table 4.4

Analysis on level of Pain among Post Caesarean mothers of Experimental Group I Before and After Acupressure

(N=28)

	Mean	**Mean%**	**Standard deviation**	**Mean difference**	**'t' value**
Before intervention	4.09	41	0.69	1.03	4.29*
After intervention	3.06	31	0.72		

***Significant at 0.05 level**

The mean post-operative pain score of post caesarean mothers in experimental group I before and after acupressure was 4.09 and 3.06 with a standard deviation of 0.69 and 0.72 respectively. The mean difference was 1.03.The calculated 't' value was 4.29, which was compared with the table value at 0.05 level of significance. The calculated value was greater than the table value. There is significant difference in pain level before and after application of acupressure which can be identified by the mean difference of 1.03. Hence the alternative hypothesis **H_1: "There is a significant difference in pain among post caesarean mothers in experimental group I before and after application of acupressure"** is accepted.

4.4. ANALYSIS ON LEVEL OF PAIN AMONG POST CAESAREAN MOTHERS OF EXPERIMENTAL GROUP II BEFORE AND AFTER HAND-FOOT MASSAGE

Pain scores of post caesarean mothers in experimental group II before and after intervention was analyzed to identify the significant effect of hand-foot massage on post-operative pain. Analysis was done using paired 't' test.

Table 4.5

Analysis on level of Pain among Post Caesarean Mothers of Experimental Group II Before and After Hand-foot massage

(N=28)

	Mean	Mean%	Standard deviation	Mean difference	't' value
Before intervention	4.28	43	0.58	1.06	5.29*
After intervention	3.22	32	0.51		

***Significant at 0.05 level**

The mean post-operative pain score of post caesarean mothers in experimental group II before and after hand-foot massage was 4.28 and 3.22 with a standard deviation of 0.58 and 0.51 respectively. The calculated 't' value was 5.29 which was compared with the table value at 0.05 level of significance. The calculated value was greater than the table value. There is significant difference in pain level before and after application of hand-foot massage which can be identified by the mean difference of 1.06. Hence the alternative hypothesis **H_2: "There is a significant difference in pain among post caesarean mothers in experimental group II before and after application of hand-foot massage"** is accepted.

4.5. COMPARISION ON PAIN SCORES OF POST CAESAREAN MOTHERS IN EXPERIMENTAL GROUP I AND EXPERIMENTAL GROUP II AFTER THE APPLICATION OF ACUPRESSURE AND HAND-FOOT MASSAGE

Pain scores of post caesarean mothers in experimental group I and experimental group II before and after intervention was analyzed to identify the significant effect of acupressure and hand-foot massage on post-operative pain. Analysis was done using 't' test for independent variable.

Table 4.6

Comparison on Pain scores of Post Caesarean Mothers in Experimental Group I and Experimental Group II after application of Acupressure and Hand-Foot Massage

(N=28)

Group	Mean	Mean%	Standard deviation	't' value
Experimental group I	3.06	31	0.72s	4.55*
Experimental group II	3.22	32	0.51	

***Significant at 0.05 level**

The mean pain score of experimental group I was 31% and the control group was 32% with a standard deviation of 0.72 and 0.51 respectively. The calculated 't' value was 4.55 which was more than the table value. Since the mean value of Experimental group I (3.06) and Experimental group II (3.22) were almost equal. Hence the null hypothesis **H_0: "There is no significant difference in pain among post caesarean mothers in experimental group I and Experimental group II after the application of acupressure and hand-foot massage respectively"** is accepted. Thus the post test result proves that acupressure and hand-foot massage were equally

effective in reducing the severity of pain among post caesarean mothers in both the experimental groups.

SECTION IV

4.6. COMPARISION OF DOMAINS AMONG POST CAESAREAN MOTHERS IN EXPERIMENTAL GROUP I AND EXPERIMENTAL GROUP II BEFORE AND AFTER INTERVENTION

Modified pain assessment scale given by American Pain Foundation consists of four domains which includes activity level, sleep, pain tolerance level and satisfaction of pain management. Caesarean mothers were asked to answer these domains with yes or no options. All the domains were assessed before the first intervention and at the end of intervention.

Table 4.7

Comparison of Domains among Post Caesarean Mothers in Experimental Group I and Experimental Group II Before and After Intervention

(N=28)

Domains	Experimental Group I (%)				Experimental Group II (%)			
	Before		After		Before		After	
	Yes	No	Yes	No	Yes	No	Yes	No
Presence of pain during activity	100	-	79	21	100	-	93	7
Presence of Sound sleep	89	11	100	-	64	36	100	-
Presence of Pain Tolerance	7	93	43	57	-	100	50	50
Satisfaction of pain Management	-	100	79	21	-	100	93	7

The above table signifies that after intervention, 79% of mothers in experimental group I and 93% of mothers in experimental group II verbalised decreased pain during activities. Majority(100%) of mothers in both the experimental groups experienced sound sleep after intervention.43% of mothers in experimental group I and 50% of mothers in experimental group II verbalised improved level of pain tolerance after intervention. Satisfaction of pain management among post caesarean mothers in experimental group I and II were 79% and 93% respectively, after intervention.

RESULTS AND DISCUSSIONS

The study was conducted at Sri Ramakrishna Hospital, Coimbatore, with the focus on determining the effect of acupressure versus hand-foot massage on pain among post caesarean mothers. The samples of the study were post caesarean mothers at Sri Ramakrishna Hospital and they were randomly allocated to Experimental group I and Experimental group II. Acupressure and Hand-foot massage were initiated when the caesarean mothers in both groups were out of anaesthetic effect. In Experimental Group I acupressure was applied on SP6 point for 20 minutes, 10 minutes on each leg and was provided 8^{th} hourly from the first post operative day until the pain subsides. In experimental group II hand-foot massage was applied for 20 minutes with 90 minutes interval until the pain subsides. To assess the level of pain the researcher used Modified Pain Assessment tool given by American Pain Foundation. The tool consists of Numerical pain scale, and four domains such as activity level, sleep, pain tolerance level, and satisfaction of pain management. The mothers were asked to rate the pain level ranging from 0 (no pain) to 10 (severe pain) before and after intervention. The pre test score and post test score was interpreted as no pain, mild pain, moderate pain and severe pain.

Caesarean section rate is increasing all over the world. Nearly one in three babies is now delivered surgically. Even though caesarean section brings better health outcomes for mother and infant, many experts believe that it is been over performed. Currently, in the present setting caesarean section rate was 40-50 per month. Lower segment caesarean section is most commonly performed as it results in less blood loss and is easier to repair and chance of scar rupture is also less when compared to

classical caesarean section. It was viewed that all the samples in the present study underwent lower segment caesarean section.

Acupressure is one of the most useful treatments for postoperative patients and the researchers demonstrated that acupressure reduces pain and aids recovery (Kesselring. A et.al., 2004). It is a therapy for the relief of pain symptoms that places physical pressure on different points on the surface of the body through greater balance and circulation of energies in the brain. It alters the brain chemistry by affecting the release of neurotransmitters and neurohormones, activates the opioid system and speeds up the transmission of electromagnetic signals that activate the flow of endorphins thereby causing reduction in the postoperative pain (Dergisi, 2006). Therefore, applying acupressure was considered to be a significantly appropriate method in post-operative pain reduction.

The effect of acupressure would last for only 6 – 8 hours from the time of application and performing acupressure only once would not be as effective as repeated performances and therefore acupressure should be performed repeatedly in post-operative patients (Dergisi, 2006). A study was conducted by Huei- Mein Chen et.al., (2004) to determine the effect of 20 minute acupressure on reducing post-operative pain among mothers after hysterectomy and the results proved that acupressure need to be repeated after 6 – 8 hours as its effect reduces as the time passes by. The efficiency of acupressure is heightened with the recurrent application of pressure on the SP6 acupoints with fixed intervals and fixed duration. Hence application of acupressure was initiated when the mother was completely relieved from the effect of anaesthesia, for 20 minutes, 8^{th} hourly until the pain subsides. Both the experimental groups received analgesics and the routine nursing care.

Mothers in both the groups reported moderate to severe pain after caesarean section even though analgesics had been administered. The effect of analgesics on post-operative pain among caesarean section was not effective according to the goal set by Joint Commission on Accreditation of uniformly low pain score of not more than 3 out of 10 both at rest and with movement is observed (Ismail et.al.,2007).

Massage is a systematic, rhythmic form of touch using certain manipulation of the soft tissue of the body to restore metabolic balance. Hand-foot massage stimulates the mechanoreceptors that activate the non painful fibres, preventing pain transmission from reaching the consciousness (Wang 2004). Nurses have used complementary therapy for many years to relieve anxiety, promote comfort, and reduce or alleviate pain (Mohanhan et.,al 2008). Pain management challenges every health team members as there is no universal treatment for pain.

Performing massage only once would not be as effective as regular performances and therefore the massage intervention should be performed successively in post-operative patients (Hattan, 2002). In a study conducted by Degirmen et.al., (2010) to determine the effect of 20 minute hand-foot massage on reducing post-operative pain in mothers who had caesarean section stated that foot and hand massage need to be repeated after every 90 minutes as its effect reduces as the time passes by. The efficiency of foot and hand massage is heightened with the recurrent performances of the massage with fixed intervals and fixed duration. Hence the hand-foot massage was given to the caesarean mothers after the effect of anaesthesia, for 20 minutes with 90 minutes interval until the pain subsides. The massage techniques included were stroking, effleurage, kneading, petrissage and

friction. Both the experimental and control groups received analgesics and routine nursing care.

5.1. FINDINGS RELATED TO OBSTETRICAL DATA

5.1.1. Age Distribution

The age distribution of mothers reveals that majority of mothers in Experimental group I and Experimental group II (43% in each group) were between 25-28 years of age.36% of mothers in experimental group I and 15% of mothers in experimental group II were between 20-24 years. 21% mothers in each group were found to be 33-36 years of age and the highest age extremity in experimental group II was 36 years, her pain score was 9.

5.1.2. Obstetrical score

The distribution of mothers based on present obstetrical score reveals that in experimental group I, 50% of mothers were primigravida and 50% of them were multigravida. In experimental group II, 36% were primigravida and 64% of them were multigravida. It was identified that 75% of multigravida and 25% of primigravida reported highest pain score of 9 immediately after the effect of anaesthesia.

5.1.3. Gestational age

A study was conducted by Bettegowda et.al., (2008) to determine the relationship between gestational age and caesarean delivery. The result showed that caesarean section rate increased at a faster pace among all preterm gestation groups. Findings related to gestational age in the current study depicted that 29% of mothers

in the experimental group I and 57 % of mothers in the experimental group II underwent caesarean section at the gestational age less than 37 weeks.

5.1.4. Indication for LSCS

The distribution of women based on the indication for surgery shows that in the experimental group I 29% of women underwent caesarean section due to previous caesarean section, 29% due to pregnancy complications and 42% of women underwent caesarean due to labor complications. In the experimental group II 43% of the women underwent caesarean due to previous caesarean section, another 43% due to pregnancy complications and 14% of women underwent caesarean due to labor complications.

5.2. FINDINGS RELATED TO ACUPRESSURE VERSUS HAND-FOOT MASSAGE ON POST-CAESAREAN PAIN AMONG POST CAESAREAN MOTHERS USING MODIFIED PAIN ASSESSMENT TOOL GIVEN BY AMERICAN PAIN FOUNDATION

The present study was adopted from the similar study conducted by Wu HC et.al.,(2009), to evaluate the effect of acupressure on post caesarean section pain. Sixty women, who underwent caesarean section under spinal anesthesia were randomly assigned to 3 groups control group, acupuncture group, and electro-acupuncture group. After surgery, control group received patient controlled analgesia, acupuncture group received manual acupuncture and electro acupuncture group received electro acupuncture on San Yin Jiao (Sp6) point along with patient controlled analgesia. The first time of requesting morphine, the frequency of patient controlled analgesia demands in 24 hours, and the doses of patient controlled

analgesia used were recorded. The total dose of patient controlled analgesia used within the first 24 hours was 30% - 35% less in the acupuncture group and the electro-acupuncture group when compared with the control group. Authors concluded that the application of acupressure and electro-acupuncture could definitely delay the time of requesting pain relief medication after caesarean section and decrease the patient controlled analgesia doses used within the first 24 hours.

The present study was also adopted from the similar study conducted by Latifi Shahrbanoo et al (2012), in order to determine the impact of hand-foot massage on postoperative caesarean pain. This clinical trial was carried out on 90 women who underwent elective caesarean section in Yahyanejad hospital, Babol. Subjects selected by random allocated method were divided into three groups: a control group, a foot and hand massage group, and foot massage group, each of which included 30 patients. On the day of surgery, the pain intensity and vital findings of the patients were measured 1 to 4 hours after a dose of pain medication, and then massage techniques were applied. Post test was conducted in three intervals, immediately after the massage, 60 minutes and 90 minutes after the massage by numerical rating scale. Finding shows that pain intensity was reduced significantly in both foot massage group and foot and hand massage group. Study suggested that hand-foot massage can be used as an effective nursing initiative in post operative pain management.

In the present study modified pain assessment tool given by American pain foundation was used to assess the post-operative pain before and after intervention. The tool consists of Numerical pain scale, and four domains such as pain during activity, presence of sound sleep, pain tolerance level and satisfaction of pain management. It was identified that all the mothers in the experimental group I and

experimental group II reported moderate to severe pain in Numerical Pain Intensity Rating Scale after the women were relieved from the effect of anaesthesia. After the application of acupressure to women in the experimental group I the pain scores reduced gradually. The finding shows that pain scores increased after 6 – 8 hours of acupressure application, hence acupressure was repeated after 8 hours till the pain subsides. After the application of hand-foot massage to mothers in the experimental group II the pain scores reduced gradually. The findings showed that pain scores increased after 90 minutes of hand-foot massage, hence the massage was repeated after 90 minutes until the pain subsides.

The findings showed that the post-operative pain felt by the mothers in the experimental group I and experimental group II reported mild pain within 2nd post operative day. When comparing the mean pain score after intervention, Experimental group I has 1.03 and Experimental group II has 1.06. The finding shows that the post operative pain felt by the mothers in Experimental group I and Experimental group II were significantly reduced after the interventions.

The findings of domains indicated that the activity level of mothers in both experimental group I and experimental group II reported as no pain after intervention. All the mothers in both experimental groups had sound sleep after intervention. It was noted that the pain tolerance level of mothers in both experimental groups has been improved after intervention. Findings also showed that 79% of mothers in Experimental Group I and 93% of mothers in experimental Group II were satisfied with pain management after intervention.

In light of the findings of the current study, it was identified that acupressure and hand-foot massage can be used as an effective nursing initiative in postoperative pain control among caesarean mothers. Mother's pain perception and pain threshold can also be considered as the contributing factors for the study. All the mothers received analgesics and routine nursing care which also influenced the pain level of the mothers. Hence, acupressure and hand-foot massage can be used as a complementary therapy as it is effective, inexpensive and easily applied strategy for post-operative pain management.

SUMMARY AND CONCLUSION

The major focus of the study was to assess acupressure versus hand-foot massage on pain among post caesarean mothers. Pain in the post-operative period is one of the major factors that impede recovery from surgery. Even presenting a universal occurrence, the post-caesarean section pain is frequently ignored, which may affect the patient's satisfaction and diminish her quality of life. Complementary therapy has become popular in the field of medicine and nursing for effective and satisfactory pain management. Among them acupressure and hand-foot massage have the potential to reduce pain significantly.

Conceptual framework of the study was based upon Ludwig & Bartalanffy General System Theory (1980).

Extensive review of literature was done on caesarean section, its pain management, use of alternative and complementary therapy for effective pain relief. The current study was adopted from the similar study conducted by Wu HC et al(2009) in China to find out the effect of acupressure on post caesarean section pain. In his study Wu Hc applied acupressure on SP6 point for 30 minutes for the first 24 hours of surgery. The researcher modified the original strategies of the intervention based on the literature support of other studies and feasibility to the present setting. In the present study acupressure was given for 20 minutes with 8 hours interval till the pain subsides. A study was conducted by Degirman et.al.,(2010) among 75 caesarean mothers to determine the effect of 20 minutes hand-foot massage on reducing post operative pain. In the present study

hand–foot massage was given for 20 minutes with 90 minutes interval till the pain subsides, whereas in Degiman's study intervention was given only once in 24 hours.

The present study was conducted at Sri Ramakrishna Hospital, Coimbatore. Matched group experimental design was adopted and purposive sample of 28 post caesarean mothers who were out of the effect of anaesthesia were included for the study. Informed consent was obtained from the selected mothers after brief explanation of the study and intervention. Modified pain assessment tool given by American pain foundation was used as a tool in this study. Acupressure was given at SP6 point for 20 minutes, 10 minutes on each leg with 8 hours interval till the pain subsides. Hand-foot massage was given to the post caesarean mothers for 20 minutes with 90 minutes interval till the pain subsides. The findings of the study proved that application acupressure and hand-foot massage were equally effective in reducing post-operative pain after caesarean section.

6.1. MAJOR FINDINGS OF STUDY

1. Acupressure and hand-foot massage were equally effective in reducing pain among post-caesarean mothers in the experimental group I and experimental group II respectively.
2. The paired't' test calculated for the Experimental group I before and after intervention revealed that Acupressure was found to be effective in reducing pain among post-caesarean mothers.
3. The paired't' test calculated for the Experimental group II before and after intervention revealed that Hand-foot massage was found to be effective in reducing pain among post-caesarean mothers.

4. The findings of the domains signified that after intervention majority of the mothers in both the Experimental groups experienced decreased pain during activity, sound sleep, improved pain tolerance and satisfied with the pain management.

6.2. RECOMMENDATIONS

1. Inservice education on acupressure and hand-foot massage should be scheduled for the nurse midwives in the clinical setting.
2. A similar study can be conducted to identify the effect of acupressure and hand-foot massage on post-operative pain in various gynaecological surgeries.
3. A study can be conducted to assess the effect of hand-foot massage on induction of sleep and on changes in vital signs among caesarean section mothers.

6.3. NURSING IMPLICATIONS

Study has identified major implications in all the aspects of nursing namely clinical practice, administration, education and research.

6.3.1. NURSING EDUCATION

Management of caesarean mother is a complex topic for nursing students chiefly because of the personalised attention that has to be given to the mother. Complementary therapies can be included in detail in the nursing curriculum. This helps the students to develop a positive attitude towards these therapies which is the global trend in nursing and midwifery.

6.3.2. NURSING PRACTICE

Nursing, however is a holistic approach at its essence. With nationwide interest in complementary therapy nurses can actively incorporate these modalities into their practice. These modalities provide the nursing professionals with research based nursing intervention and enhancement of independent nursing function. Nurses must regularly attend continuing education sessions on techniques such as foot and hand massage, acupressure, guided imaginary and therapeutic touch to implement these therapies successfully. This will bridge the need of complementary therapies in hospital setting.

6.3.3. NURSING ADMINISTRATION

Complementary therapy can be integrated into the existing protocol for care of caesarean mothers thus reinforcing the implementation of interventions. It is vital that all nurses are aware of implication associated with the use of complementary therapies in their respective settings. Nurses who choose to utilise these therapies must ensure they are trained to a standard recognised as competent by the regulatory body for each therapy.

6.3.4. NURSING RESEARCH

Though the aspect of caesarean pain management is a well researched aspect in obstetrics still it remains the most challenging area. The findings of the present study can be utilized by the nurse researchers to acquire new knowledge regarding management of caesarean pain. The effect of acupressure and hand-foot massage can be further experimented with clinical trials for more concrete findings.

6.4. CONCLUSION

Application of acupressure and hand-foot massage reduced the post-operative pain among caesarean mothers and they experienced increased level of comfort and wellbeing. Hence, the researcher strongly suggests that the nurse midwife should adopt these interventions in their clinical practice to reduce post-operative pain among caesarean mothers.

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APPENDIX I
PERMISSION LETTER FOR CONDUCTING STUDY

From,

Selvi.C,

Msc (nursing) 1year,

College of nursing,

Sri Ramakrishna institute of paramedical science,

Coimbatore.

To,

The Dean,

Sri Ramakrishna hospital,

Coimbatore.

Through

The principal,

College of nursing,

Sri Ramakrishna institute of paramedical science,

Coimbatore.

Respected Sir,

Sub: Requesting permission to conduct study in SRI RAMAKRISHNA HOSPITAL-Reg

I am Selvi.C doing my 1st year M.Sc nursing in Sri Ramakrishna Institute of paramedical science and as a part of my M.Sc Nursing programme I have undertaken the following study for my research **Acupressure Versus Hand-foot massage on Pain among post caesarean mothers.** I would like to do the above said study in your esteemed institution. I humbly request you to grant me permission to conduct the study in your institution. Herewith I have attached a brief copy of the research proposal.

Thanking you,

PRINCIPAL
College of Nursing,
Sri Ramakrishna Institute of Paramedical Science
Coimbatore - 641 044

Yours sincerely,

(Selvi.C)

Permitted
9/3/13

From,

Selvi.C,

Msc(nursing) 1year,

College of nursing,

Sri Ramakrishna institute of paramedical science,

Coimbatore.

To,

Dr. Lalitha MBBS,DGO,

Consultant obstetrician and gynaecologist,

Sri Ramakrishna hospital,

Coimbatore.

Through

The principal,

College of nursing,

Sri Ramakrishna institute of paramedical science,

Coimbatore.

Respected Madam,

Sub: Requesting permission to conduct study in SRI RAMAKRISHNA HOSPITAL-Reg

I am Selvi.C doing my 1st year M.Sc nursing in Sri Ramakrishna Institute of paramedical science and as a part of my M.Sc Nursing programme I have undertaken the following study for my research **Acupressure Versus Hand-foot massage on Pain among post caesarean mothers.** I would like to do the above said study in your esteemed institution. I humbly request you to grant me the permission to conduct the study in your institution. Herewith I am attaching a brief copy of the research proposal.

Thanking you,

Permitted

Dr. R.LALITHA, M.B.B.S DGO.
Obstetrician & Gynaecologist
Sri Ramakrishna Hospital,
COIMBATORE

PRINCIPAL
College of Nursing,
Sri Ramakrishna Institute of Paramedical Sciences
Coimbatore - 641 044.

Yours sincerely,

(Selvi.C)

From,

Selvi.C,

Msc(nursing) 1year,

College of nursing,

Sri Ramakrishna institute of paramedical science,

Coimbatore.

To,

Dr. Banumathy, MBBS,DGO,

Consultant obstetrician and gynaecologist,

Sri Ramakrishna hospital,

Coimbatore.

Through

The principal,

College of nursing,

Sri Ramakrishna institute of paramedical science,

Coimbatore.

Respected Madam,

Sub: Requesting permission to conduct study in SRI RAMAKRISHNA HOSPITAL-Reg

I am Selvi.C doing my 1st year M.Sc nursing in Sri Ramakrishna Institute of paramedical science and as a part of my M.Sc Nursing programme I have undertaken the following study for my research **Acupressure Versus Hand-foot massage on Pain among post caesarean mothers.** I would like to do the above said study in your esteemed institution. I humbly request you to grant me the permission to conduct the study in your institution. Herewith I am attaching a brief copy of the research proposal.

Thanking you,

Yours sincerely,

(Selvi.C)

PRINCIPAL
College of Nursing,
Sri Ramakrishna Institute of Paramedical Sciences
Coimbatore - 641 044.

Permitted

DR. M. BANUMATHY. MBBS, DGO, DNB
REG. No: 29866
OBSTETRICIAN & GYNAECOLOGIST

APPENDIX II

LETTER REQUESTING TO VALIDATE THE RESEARCH TOOL AND CONTENT

REQUISITION LETTER

From,

Selvi.C,
M.Sc (Nursing) II year,
College Of Nursing, SRIPMS,
Coimbatore.

To,

Dr. Lalitha, MBBS, DGO.
Consultant Obstetrician & Gynaecologist,
Sri Ramakrishna Hospital,
Coimbatore.

Through,

The Principal,
College Of Nursing,
SRIPMS,
Coimbatore.

Respected Sir/Madam,

Subject: Requisition for Tool and Content Validation:-Reg

I am Selvi.C, doing my 2nd year M.Sc Nursing in Sri Ramakrishna Institute of Paramedical Sciences and as a part of my M.Sc Nursing Program, I have undertaken the following study for my research "**Acupressure versus Hand-foot massage on pain among post cesarean mothers**". The following tool is tend to be used, hence I request you to kindly give me a valuable suggestion and necessary modification for the same.

Thanking you,

Coimbatore.
09.05.13

PRINCIPAL
College of Nursing,
Sri Ramakrishna Institute of Paramedical Sciences
Coimbatore - 641 044

Yours sincerely,

(Selvi.C)

CONTENT VALIDITY FORMAT

Name of the Expert : Dr. Lalitha,

Address : Consultant Obstetrician & Gynaecologist,
Sri Ramakrishna Hospital,
Coimbatore.

Kindly validate each section in the tool and mark wherever applicable.

S.NO	SECTIONS OF THE TOOL	STRONGLY AGREE	AGREE	NEED NOTIFICATION	REMARKS
1.	SECTION-A		✓		
2.	SECTION-B		✓		
3.	SECTION-C		✓		

Total content of the tool : ✓ Adequate/Inadequate

Date: 13.05.13

Signature of the Expert

Dr. R.LALITHA, M.B.B.S DGO
Obstetrician & Gynaecologist
Sri Ramakrishna Hospital,
COIMBATORE

REQUISITION LETTER

From,

Selvi.C,
M.Sc (Nursing) II year,
College Of Nursing, SRIPMS,
Coimbatore.

To,

Prof. Baby,
HOD - Dept. of. OBG Nursing,
PSG College of Nursing,
Coimbatore.

Through,

The Principal,
College Of Nursing,
SRIPMS,
Coimbatore.

Respected Sir/Madam,

Subject: Requisition for Tool and Content Validation:-Reg

I am Selvi.C, doing my 2nd year M.Sc Nursing in Sri Ramakrishna Institute of Paramedical Sciences and as a part of my M.Sc Nursing Program, I have undertaken the following study for my research "**Acupressure versus Hand-foot massage on pain among post cesarean mothers**". The following tool is tend to be used, hence I request you to kindly give me a valuable suggestion and necessary modification for the same.

Thanking you,

Coimbatore.
08.05.13

K. Kamathilagam
for PRINCIPAL
College of Nursing
Sri Ramakrishna Institute of Paramedical Sciences
Coimbatore - 641 044

Yours sincerely,

C. Selvi

(Selvi.C)

CONTENT VALIDITY FORMAT

Name of the Expert : Prof. S. Baby, H.O.D, OBG NSG Dept,

Address : PSG College of Nursing
Coimbatore.

Kindly validate each section in the tool and mark wherever applicable.

S.NO	SECTIONS OF THE TOOL	STRONGLY AGREE	AGREE	NEED NOTIFICATION	REMARKS
1.	SECTION-A		✓		
2.	SECTION-B		✓		
3.	SECTION-C		✓		

Total content of the tool : ✓ Adequate/Inadequate

Date: 10.5.13

S. Baby
Signature of the Expert

PSG COLLEGE OF NURSING
Peelamedu
COIMBATORE-4

REQUISITION LETTER

From,

Selvi.C,
M.Sc (Nursing) II year,
College Of Nursing, SRIPMS,
Coimbatore.

To,

Prof. Latha,
Principal,
RVS College of Nursing,
Kannampalayam

Through,

The Principal,
College Of Nursing,
SRIPMS,
Coimbatore.

Respected Sir/Madam,

Subject: Requisition for Tool and Content Validation:-Reg

I am Selvi.C, doing my 2nd year M.Sc Nursing in Sri Ramakrishna Institute of Paramedical Sciences and as a part of my M.Sc Nursing Program, I have undertaken the following study for my research "**Acupressure versus Hand-foot massage on pain among post cesarean mothers**". The following tool is tend to be used, hence I request you to kindly give me a valuable suggestion and necessary modification for the same.

Thanking you,

Coimbatore.
08.05.13

K. Kamalalay
PRINCIPAL
College of Nursing,
Sri Ramakrishna Institute of Paramedical Sciences
Coimbatore - 641 044

Yours sincerely,

C. Selvi

(Selvi.C)

CONTENT VALIDITY FORMAT

Name of the Expert : PROF(Mrs) S. P. LATHA

Address : PRINCIPAL, RVS COLLEGE OF NURSING, KUMARAN KOTTAM CAMPUS, TRICHY ROAD, KANNAMPALAYAM, COIMBATORE- 641402.

Kindly validate each section in the tool and mark wherever applicable.

S.NO	SECTIONS OF THE TOOL	STRONGLY AGREE	AGREE	NEED NOTIFICATION	REMARKS
1.	SECTION-A		✓		
2.	SECTION-B		✓		
3.	SECTION-C		✓		

Total content of the tool : Adequate/Inadequate

Date: 14.05.2013

Signature of the Expert

PRINCIPAL
R.V.S. COLLEGE OF NURSING
KANNAMPALAYAM
TRICHY ROAD, SULUR
COIMBATORE - 641 402

REQUISITION LETTER

From,

Selvi.C,
M.Sc (Nursing) II year,
College Of Nursing, SRIPMS,
Coimbatore.

To,

Prof. Sheeba,
HOD – Dept. of OBG Nursing,
KG College of Nursing,
Coimbatore.

Through,

The Principal,
College Of Nursing,
SRIPMS,
Coimbatore.

Respected Sir/Madam,

Subject: Requisition for Tool and Content Validation:-Reg

I am Selvi.C, doing my 2nd year M.Sc Nursing in Sri Ramakrishna Institute of Paramedical Sciences and as a part of my M.Sc Nursing Program, I have undertaken the following study for my research "**Acupressure versus Hand-foot massage on pain among post cesarean mothers**". The following tool is tend to be used, hence I request you to kindly give me a valuable suggestion and necessary modification for the same.

Thanking you,

Coimbatore.

PRINCIPAL
College of Nursing,
Sri Ramakrishna Institute of Paramedical Sciences
Coimbatore - 641 044

Yours sincerely,

(Selvi.C)

CONTENT VALIDITY FORMAT

Name of the Expert : MRS. R. Sheeba.

Address : Professor
K.G. College of Nsg.
Coimbatore.

Kindly validate each section in the tool and mark wherever applicable.

S.NO	SECTIONS OF THE TOOL	STRONGLY AGREE	AGREE	NEED NOTIFICATION	REMARKS
1.	SECTION-A			✓	
2.	SECTION-B		✓		
3.	SECTION-C		✓		

✓

Total content of the tool : Adequate/Inadequate

Date:

K. G. College of Nursing, K. G. Hospital
17 MAY 2013
Coimbatore
I.N.C. Code No: 2[illegible]

Signature of the Expert

(1) No objectives

APPENDIX III

TOOL FOR DATA COLLECTION

Modified Pain Assessment Tool Given by American Pain Foundation

Section A

Sample Number :

Age :

Religion :

Obstetrical score :

Gestational age :

Indication for LSCS :

Type of Anaesthesia :

Date & time of surgery :

Section B

DAILY PAIN CHART

Post operative day	**0**		**1**		**2**		**3**		**4**		**5**	
Session	**Pre Test**	**Post Test**	**Pre Test**	**Post Test**	**Pre Test**	**Post Test**	**Pre Test**	**Post Test**	**Pre Test**	**Post Test**	**Pre Test**	**Post Test**
1												
2												
3												
4												
5												
Analgesics Name/Dose												

DAILY PAIN SUMMARY (Pre test)

1. Did you have Pain today?

NO **Yes**

_____ _____

2. Did you take all your pain medicine today according to Instruction?

NO **Yes**

_____ _____

3. Did you avoid or limit any of your activities because of pain or changes in your pain?

NO **Yes** **If Yes, What Activities?**

_____ _____

i. Turning **ii. Moving** **iii. Sitting** **iv. Walking**

4. Did you experience unrelieved pain, even if you have taken pain medicine?

NO **Yes**

_____ _____

5. Other than prescription medicine, did you do anything else today to relieve the pain?

NO **Yes** **(If Yes, Please specify from the list below.)**

_____ _____

____ Non-prescription drugs (e.g., acetaminophen, ibuprofen)

____ Herbal remedies

____ Hot or cold packs

____ Exercise

____ Changing position (such as lying down or elevating your legs)

____ Physical therapy

____ Rest

____ Psychological counselling

____ Talk to trusted friend, family, clergy

____ Prayer, meditation, guided imagery

____ Relaxation technique (hypnosis, biofeedback)

____ Creative technique (art or music therapy)

____ If any Other, Specify _____

6. Did you sleep through the night?

NO **Yes**

_____ _____

If not, how many times was your sleep disrupted? _____

7. How many hours did you sleep during the night? _____

8. What pain level overall would you find acceptable?

0 1 2 3 4 5 6 7 8 9 10

9. Overall, are you satisfied with your pain management?

NO **Yes**

_____ _____

DAILY PAIN SUMMARY (Post test)

1. Did you have Pain today?

   NO **Yes**

   _____ _____

2. Did you take all your pain medicine today according to Instruction?

   NO **Yes**

   _____ _____

3. Did you avoid or limit any of your activities because of pain or changes in your pain?

   NO **Yes** **If Yes, What Activities?**

   _____ _____

   v. Turning **vi. Moving** **vii. Sitting** **viii. Walking**

4. Did you experience unrelieved pain, even if you have taken pain medicine?

   NO **Yes**

   _____ _____

5. Other than prescription medicine, did you do anything else today to relieve the pain?

   NO **Yes** **(If Yes, Please specify from the list below.)**

   _____ _____

   ____ Non-prescription drugs (e.g., acetaminophen, ibuprofen)

   ____ Herbal remedies

   ____ Hot or cold packs

   ____ Exercise

____ Changing position (such as lying down or elevating your legs)

____ Physical therapy

____ Rest

____ Psychological counselling

____ Talk to trusted friend, family, clergy

____ Prayer, meditation, guided imagery

____ Relaxation technique (hypnosis, biofeedback)

____ Creative technique (art or music therapy)

____ If any Other, Specify _____

6. Did you sleep through the night?

NO **Yes**

_____ _____

If not, how many times was your sleep disrupted? _____

7. How many hours did you sleep during the night? _____

8. What pain level overall would you find acceptable?

0 1 2 3 4 5 6 7 8 9 10

9. Overall, are you satisfied with your pain management?

NO **Yes**

_____ _____

APPENDIX IV

CERTIFICATE OF TRAINING IN ACUPRESSURE

SARAVANA ACU-TOUCH & HEALING

2/2337-B, Shenbaga Nagar, SIVAKASI 626 189.

Cell : 96262 41336

This is to certify that Ms. **Selvi.C** has undergone acupressure course and successfully completed the training in December 2012.

For Saravana Acu - Touch & Healing

Healer

APPENDIX V
CERTIFICATE OF TRAINING IN MASSAGE THERAPY

1562,Avinashi Road,
Hope college,
Coimbatore-641 004.

Prof.MuthukumarM.P.T,
Sugam Physiotherapy Clinic.

CERTIFICATE

This is to certify that Ms. Selvi. C. _____has undergone Hand and Foot massage therapy course and successfully completed the training in January 2013.

04/03/2013
DIRECTOR
Prof. T.S. Muthukumar., M.P.T., (Cardio-Resp)
Consultant Physiotherapist

CONSUTING TIME: 5.30pm -9pm.

APPENDIX VI
CERTIFICATE OF ENGLISH EDITING

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the dissertation "**Acupressure versus hand- foot massage on pain among post caesarean mothers at Sri Ramakrishna hospital, Coimbatore**" done by Selvi.C, II year M.Sc Nursing, College of Nursing, Sri Ramakrishna Institute of Paramedical sciences, Coimbatore has been edited for English appropriateness.

Name : M.SARAVANAKUMAR

Designation : PG Asst., (English)

Name of institution : Govt. Hr. Sec. School, S. Ammapatti

Signature : 7/1/2014

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ANNEXURE - I

Paired 't' test

To test the hypothesis, 't' test was applied to find out the significant difference between the same group, either Experimental group I or Experimental group II, before and after the Application of Acupressure and Hand-foot massage.

$$t = \frac{\bar{d}}{\frac{SD}{\sqrt{n}}}$$

$$SD = \sqrt{\frac{\sum\left(d - \bar{d}\right)^2}{n}}$$

$\bar{d}$ = Mean of difference between pre-test and post- test score

SD = Standard deviation of the pre-test and post- test score

n = Number of samples

ANNEXURE – II

Unpaired 't' test

To test the hypothesis,'t' test was applied to find out the significant difference between the scores among Experimental group I and Experimental group II after the Application of Acupressure and Hand-foot massage respectively.

Unpaired 't' test

$$t = \frac{\overline{x_1} - \overline{x_2}}{s}\sqrt{\frac{n_1 n_2}{n_1 + n_2}}$$

$$SD = \sqrt{\frac{\sum\left(x_1 - \overline{x_1}\right)^2 \left(x_2 - \overline{x_2}\right)^2}{n_1 + n_2}}$$

Where, $\overline{X}_1$ = mean of the Experimental group I post test

$\overline{X}_2$ = mean of the Experimental group II post test

n_1 = number of samples in Experimental group I

n_2 = number of samples in Experimental group II